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PERSISTENCY OF DEPENDENCY—A STUDY IN SOCIAL CAUSATION.

By Maurice B. Hexter, *Superintendent, United Jewish Charities, Cincinnati, Ohio.*

Partaking of the generally prevalent attempts of sociologists at "objectivity," social workers have of late years turned their attention to the scientific measurement of social phenomena. Such descriptions of processes and functions were desired as might be verified and checked up by any investigator provided that he approached his task in a scientific spirit. It was recognized that by such winnowing of facts the truth might be found. This assumes a recognition of the necessity of eliminating the personal equation—"subjectivity." "This 'impersonal' view, has indeed, alone made science possible, and until recently has been considered the adequate and secure foundation of scientific method in all fields." It is only lately that we have begun to realize the true significance of scientific methods in the sphere of philanthropy. Keeping of strict records and efficient investigation of cases has been urged only from the standpoint of protection of charitable institutions from the impositions of unworthy applicants; such functions have been utilized for the better exposition of the scope and efficiency of the given agency. Such data, of late, however, have been considered invaluable material for scientific investigation and precise presentation.

The present investigation comprises a statistical analysis of the case records of the United Jewish Charities of Cincinnati. An analysis of the duration of dependency presumes a centralized agency, for then each case is carried until solution; it is not transferred for treatment to another or allied organization. Thus, the organization comprises all the functions for rehabilitation work. This all-inclusive coördination and correlation makes it possible precisely to denote exact duration of dependency. Transients have not been considered within the scope of this investigation since there is no reliable information in one single organization relative to the duration of a tran-

TABLE I.

NUMBER OF CASES AND RATES OF SOLUTION.

Year Case Occurred.	0. Number of Cases.	0. Solved.	0. Rate.	1. Number of Cases.	1. Solved.	1. Rate.	2. Number of Cases.	2. Solved.	2. Rate.	3. Number of Cases.	3. Solved.	3. Rate.	4. Number of Cases.	4. Solved.	4. Rate.	5. Number of Cases.	5. Solved.	5. Rate.	6. Number of Cases.	6. Solved.	6. Rate.
1897-1898	[illegible]	42	[illegible]	[illegible]	15	[illegible]	60	12	[illegible]	54	10	[illegible]	[illegible]	4	[illegible]	35	7	18.4	[illegible]	3	[illegible]
1898-1899	98	58	[illegible]	40	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6	[illegible]	20	3	[illegible]	[illegible]	[illegible]	[illegible]	24	[illegible]	8.9
1899-1900	72	34	[illegible]	46	12	[illegible]	28	4	14.8	21	5	[illegible]	21	2	9.5	[illegible]	4	[illegible]	20	[illegible]	[illegible]
1900-1901	70	36	51.2	[illegible]	3	[illegible]	32	3	9.4	[illegible]	5	[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.0
1901-1902	89	42	47.2	47	6	[illegible]	47	10	[illegible]	[illegible]	5	[illegible]	23	3	10.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1902-1903	105	[illegible]	49.0	54	22	40.7	40	7	16.0	45	18	[illegible]	25	2	7.8	25	[illegible]	5.0	[illegible]	[illegible]	[illegible]
1903-1904	108	[illegible]	56.4	120	20	[illegible]	[illegible]	17	32.1	46	9	[illegible]	[illegible]	[illegible]	18.4	44	[illegible]	13.0	23	[illegible]	10.5
1904-1905	219	[illegible]	41.2	158	48	[illegible]	[illegible]	[illegible]	20.0	58	19	[illegible]	[illegible]	[illegible]	[illegible]	19	[illegible]	11.1	[illegible]	4	12.5
1905-1906	154	[illegible]	48.7	57	23	[illegible]	64	20	31.2	44	9	[illegible]	[illegible]	[illegible]	[illegible]	22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1906-1907	180	[illegible]	[illegible]	103	22	21.4	81	23	[illegible]	61	[illegible]	[illegible]	[illegible]	[illegible]	14.5	[illegible]	[illegible]	15.2	22	[illegible]	[illegible]
1907-1908	211	103	[illegible]	296	51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	5	[illegible]
1908-1909	[illegible]	55	32.2	58	20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]
1909-1910	[illegible]	40	[illegible]	40	12	30.0	28	3	[illegible]	20	7	[illegible]	13	[illegible]	[illegible]	13	[illegible]	8.0			
1910-1911	125	66	[illegible]	[illegible]	[illegible]	54.7	38	[illegible]	14.0	17	11	[illegible]	[illegible]	[illegible]	[illegible]						
1911-1912	[illegible]	45	47.9	27	17	[illegible]	[illegible]	[illegible]	[illegible]	19	4	[illegible]									
1912-1913	[illegible]	[illegible]	[illegible]	58	[illegible]	41.1	48	10	[illegible]												
1913-1914	190	[illegible]	[illegible]	64	14	[illegible]															
Total.	2,4[illegible]			1,292			880			[illegible]			[illegible]			[illegible]			[illegible]		
Solved.	1,171			[illegible]			[illegible]			[illegible]			80			[illegible]			[illegible]		
Rate.	47.5			20.5			[illegible]			[illegible]			16.[illegible]			[illegible]			15.9		

Year Case Occurred.	7. Number of Cases.	7. Solved.	7. Rate.	8. Number of Cases.	8. Solved.	8. Rate.	9. Number of Cases.	9. Solved.	9. Rate.	10. Number of Cases.	10. Solved.	10. Rate.	11. Number of Cases.	11. Solved.	11. Rate.	12. Number of Cases.	12. Solved.	12. Rate.	13. Number of Cases.	13. Solved.	13. Rate.
1897-1898	[illegible]	6	[illegible]	[illegible]	[illegible]	7.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.7	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
1898-1899	[illegible]	4	[illegible]	[illegible]	2	[illegible]	[illegible]	8	[illegible]	[illegible]	1	7.5	12	2	16.0	[illegible]	[illegible]	10.0	[illegible]	8	[illegible]
1899-1900	14	[illegible]	[illegible]	12	1	[illegible]	11	1	[illegible]	10	1	[illegible]	9	[illegible]	11.1	[illegible]	[illegible]	25.0	6	1	[illegible]
1900-1901	13	1	[illegible]	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	6	[illegible]	16.5	5	[illegible]	[illegible]	4	1	[illegible]
1901-1902	16	[illegible]	[illegible]	18	[illegible]	[illegible]	10	1	10.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37.5	[illegible]	[illegible]	20.0	4	1	25.0
1902-1903	51	[illegible]	[illegible]	19	1	[illegible]	18	2	[illegible]	[illegible]	[illegible]	18.5	8	[illegible]	[illegible]	[illegible]	4	[illegible]			
1903-1904	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]						
1904-1905	55	[illegible]	[illegible]	36	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15	5	30.[illegible]									
1905-1906	[illegible]	[illegible]	24	19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]												
1906-1907	20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]															
1907-1908	[illegible]	[illegible]	[illegible]																		
1908-1909																					
1909-1910																					
1910-1911																					
1911-1912																					
1912-1913																					
1913-1914																					
Total.	27[illegible]			[illegible]			152			[illegible]			[illegible]			[illegible]			[illegible]		
Solved.	[illegible]			[illegible]			[illegible]			[illegible]			[illegible]			10			7		
Rate.	[illegible]			[illegible]			[illegible]			24.1			[illegible]			[illegible]			[illegible]		

14.			15.			16.			17.			
Number of Cases.	Solved.	Rate.	Number of Cases.	Solved.	Rate.	Number of Cases.	Solved.	Rate.	Number of Cases.	Solved.	Rate.	Timing of Clue.
1	8	[illegible]	9	1	11.1	8	3	37.5	6	2	33.3	4
7	1	14.3	6	1	16.6	5	2	[illegible]				4
5	1	20.0	4	1	25.0							4
8	1	12.5										3
												8
												6
												10
												12
												8
												14
												20
												22
												11
												21
												16
												27
												28
[illegible]	[illegible]	14.[illegible]	19	3	15.8	[illegible]	[illegible]	[illegible]	6	2	33.3	215

sient's dependency. Similarly, cognizance has only been taken of those cases wherein results were positively ascertainable.

The investigation was undertaken for three general purposes.

1. Is the duration of dependency increasing or decreasing?

2. Are relief agencies tending to pauperize their constituency, understanding by that term a "subjective condition in which a person prefers and persists in living on charity, loses his respect for self-dependence and has no ambition to obtain through his own efforts, a more comfortable life?" In other words, does the relief office tend to engender a feeling of what Marx terms "*verdammte Bedürfnisslosigkeit*"?

3. Assuming that duration of dependency is one of the many indices or coefficients of efficiency in relief work, is there a possibility of developing a measuring scale whereby the work of various cognate organizations may properly be compared?

From a certain point of view, duration of dependency may be considered as withdrawals from a life insurance corporation and statistically treated similarly.* The following table, then, is homologous to a table of withdrawals in life insurance and the annual withdrawal rates are therefore analogous to the rate of solution of a case of dependency or in other words the rate of duration.

A word of explanation will make clear the meaning of the above table. Of 2,466 cases, 1,174 were solved with a duration of less than one year. The rate of solution, then, is 47.8 per hundred cases. Further, of 1,292 cases exposed to risk for a period of one year 385 were solved with a duration of one year. The rate, therefore, is 30 per hundred cases.

The light curve in the following chart is constructed from the actual rates of solution as given in Table III. The heavy is the smoothed curve through our rough data.† It can be seen that the rate of solution decreases rapidly for the first few years and then remains essentially the same for the fifth, sixth, seventh, eighth, ninth, tenth, eleventh, and twelfth years of duration. Thereafter the rise is rapid to the close of the seventeenth year of exposure. This may be explained by *a posteriori* reasoning somewhat as follows. The high rates of solution noticeable in the early years of exposure are due to the more or less acute cases of dependency. The medium rates of solution in the center of the mass of the data are due in large part to the chronic nature of the dependency, such as widowhood. The children are still small and no solution can be expected before the twelfth year of duration until two or three of the children have started to work. Color is lent to this hypothesis by the high rates of solution from the thirteenth year onward. Detailed examination of the cases for several years bears out directly this reasoning.

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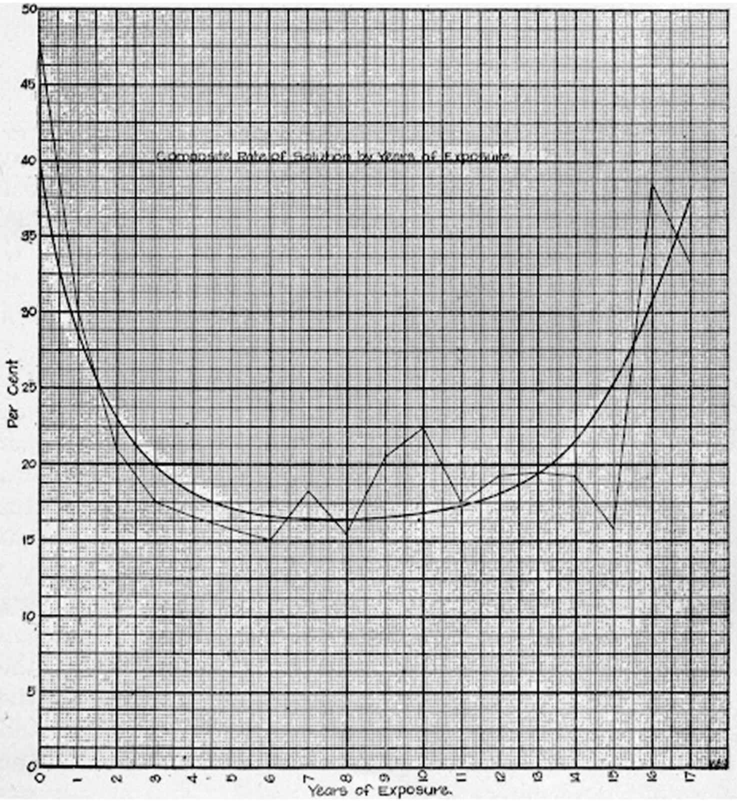
* For a fuller explanation of the method herein used see Elderton and Fippard, Construction of Mortality and Sickness Tables, p. 29.

† For fuller explanation of the method see A. L. Bowley, Elements of Statistics, pp. 251–256.



In addition to visualizing the rates of solution for our data, the curve may be used for comparative purposes. Thus, we can determine whether any one single year gave a higher or a lower rate of solution than our average or composite. In this manner, we will be enabled to ascertain whether the duration of our dependency is increasing or decreasing. (To preclude unbiased errors we use the curve of actual average rather than the smoothed curve.) The following table shows the positive and negative deviations from the composite average. No account is taken of quantitative deviations but merely whether the deviation is positive or negative.

TABLE II.

POSITIVE AND NEGATIVE DEVIATIONS FROM THE COMPOSITE.

Year Case Opened.	Year of Exposure.																		Total Negative Deviations.	Total Positive Deviations.	Coincidences.	Total.
	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.				
1897–1898	−	−	−	+	−	+	−	+	−	−	−	−	−	−	−	−	−	0	14	3	1	18
1898–1899	+	−	−	−	+	−	−	0	−	−	−	−	−	+	−	+	+		11	5	1	17
1899–1900	−	0	−	−	−	+	−	−	−	−	−	−	+	−	+	+			11	4	1	16
1900–1901	+	−	−	−	−	+	+	−	+	+	−	−	+	+	+				7	8		15
1901–1902	−	−	+	−	+	−	+	+	+	−	−	+	+	+					6	8		14
1902–1903	+	+	−	+	−	−	−	−	−	−	−	+	+						8	5		13
1903–1904	−	−	+	−	−	−	−	−	−	+	+	−							9	3		12
1904–1905	−	+	+	+	+	−	−	−	−	+	+								5	6		11
1905–1906	−	−	+	+	+	−	−	+	+	+									4	6		10
1906–1907	−	−	+	−	−	+	+	+	+										4	5		9
1907–1908	+	+	−	−	−	+	+	+											3	5		8
1908–1909	+	−	−	−	−	+	+												4	3		7
1909–1910	+	0	−	+	+	−													2	3	1	6
1910–1911	−	−	−	+	+														3	2		5
1911–1912	−	+	+	−															2	2		4
1912–1913	−	+	+																1	2		3
1913–1914	+	+																	0	2		2
Total																			94	72	4	170

In order to make clearer the data in the above table the deviations have been grouped into two parts: the first group comprises the series of years 1897–1898 through 1904–1905; the second group consists of the years 1905–1906 through 1912–1913. The following table shows this in concise form. From the table below it is noticeable that the proportion of negative deviations from our composite average decreases

Year.	Negative Deviations.		Positive Deviations.		Coincidences.	Total.
	Number.	Per Cent.	Number.	Per Cent.		
1897–1898 to 1894–1895	71	61.2	42	36.2	3	116
1905–1906 to 1912–1913	23	35.9	40	62.5	1	64

about 42 per cent. from the first period until the second period. In other words our rate of solutions of cases of various terms of exposure has materially increased in later years as is seen by the fact that of 116 observation periods 71, or 61.2 per cent., deviated negatively from our composite average, whereas in the second group there were 64 observation periods of which 23, or 35.9 per cent., deviated in a similar direction from our composite.

In all of the previous proofs of the decrease in duration of dependency we have formulated our comparison upon a composite average of all observations for all years and for varying terms of exposure. There remains another method of comparison, namely, to take as our basis the rates of solution of those cases arising during the year 1897–1898. In order to show the method involved the following table is shown. The structure of the table is such that we may ascertain what proportion of the cases originating in any one year have been solved after a definite term of exposure to solution. Thus, of the cases arising in the year 1900–1901, 71.3 per cent. have been solved after the fourth year of exposure, etc.

In order to simplify the table below we will tabulate the positive and negative deviations in a manner similar to the previous table where we tabulated the deviations from our

TABLE III.

CUMULATIVE RATES OF SOLUTION BY YEAR OF EXPOSURE.

Year Case Opened.	Year of Exposure.																	
	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1897–1898	43.7	54.1	62.4	69.4	73.6	78.6	80.0	84.2	85.6	88.4	89.8	90.5	91.2	92.6	94.0	94.7	96.1	97.4
1898–1899	53.9	59.0	63.1	69.2	74.3	75.3	77.3	81.4	83.4	86.5	87.5	89.5	90.5	92.5	93.5	94.5	97.5	
1899–1900	46.0	62.2	67.6	71.7	74.4	79.8	81.1	83.8	85.1	86.4	87.7	89.0	91.7	93.0	94.3	95.6		
1900–1901	51.4	58.0	62.0	66.0	71.3	80.5	84.5	85.8	88.0	90.6	91.9	93.2	94.5	95.8	97.1			
1901–1902	47.2	53.9	75.1	70.7	76.3	78.5	81.8	85.3	88.6	89.7	90.8	94.1	95.2	96.3				
1902–1903	49.0	70.2	75.7	83.7	84.9	86.1	87.3	88.5	89.1	90.3	92.2	94.1	96.0					
1903–1904	36.8	51.4	62.2	67.9	72.3	76.1	78.7	80.0	81.9	85.7	92.7	94.0						
1904–1905	41.2	61.7	73.1	78.6	83.6	85.5	87.4	88.3	89.2	92.4	94.7							
1905–1906	43.5	58.1	63.8	67.6	68.2	70.1	73.9	77.7	81.9	85.2								
1906–1907	42.8	55.0	66.1	69.5	73.8	78.2	83.2	87.6	92.0									
1907–1908	49.2	65.6	72.6	76.7	79.0	83.5	85.8	90.3										
1908–1909	52.2	63.9	67.4	71.5	75.0	80.9	87.3											
1909–1910	50.0	65.0	67.5	76.2	84.9	86.1												
1910–1911	40.3	53.3	59.1	66.6	75.2													
1911–1912	47.2	68.6	78.7	82.1														
1912–1913	40.3	61.9	73.4															
1913–1914	63.3	87.7																

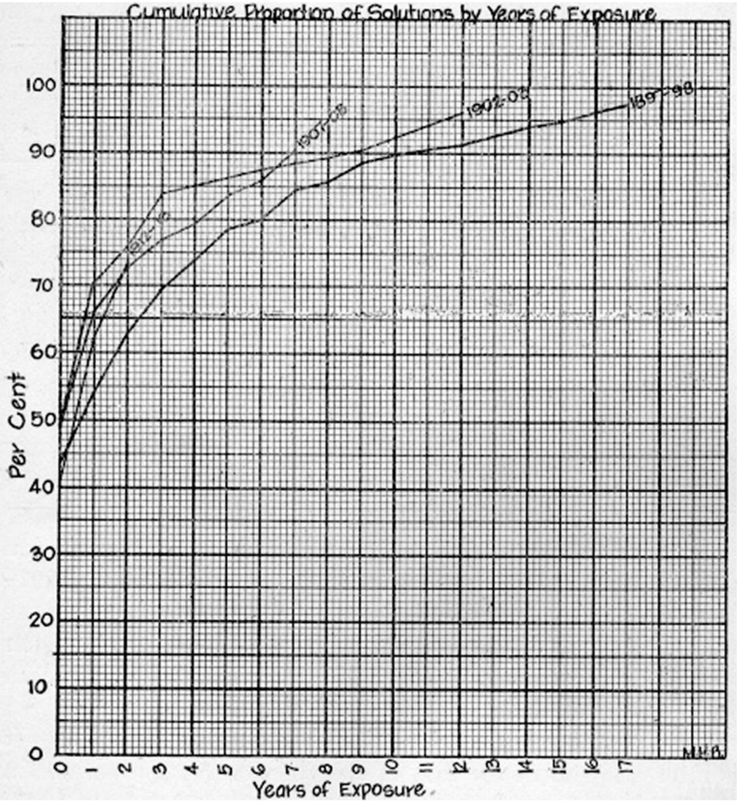
compositive average. The following table shows the results of such a tabulation.

TABLE IV.

POSITIVE AND NEGATIVE DEVIATIONS FROM BASIC YEAR.

Year Case Opened.	Year of Exposure.																		Positive Deviations.	Negative Deviations.	Total.
	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.			
1898–1899	+	+	+	−	+	−	−	−	−	−	−	−	−	−	−	−	+		5	12	17
1899–1900	+	+	+	+	+	+	+	−	−	−	−	−	+	+	+	+			11	5	16
1900–1901	+	+	−	−	−	+	+	+	+	+	+	+	+	+	+				12	3	15
1901–1902	+	−	+	+	+	−	+	+	+	+	+	+	+	+					12	2	14
1902–1903	+	+	+	+	+	+	+	+	+	+	+	+	+						13	0	13
1903–1904	−	−	−	−	−	−	−	−	−	−	+	+							2	10	12
1904–1905	−	+	+	+	+	+	+	+	+	+	+								10	1	11
1905–1906	−	+	+	−	−	−	−	−	−	−									2	8	10
1906–1907	−	+	+	+	+	−	+	+	+										7	2	9
1907–1908	+	+	+	+	+	+	+	+											8	0	8
1908–1909	+	+	+	+	+	+	+												7	0	7
1909–1910	+	+	+	+	+	+													6	0	6
1910–1911	−	−	−	−	+	+													1	4	5
1911–1912	+	+	+	+															4	0	4
1912–1913	−	+	+																2	1	3
1913–1914	+	+																	2	0	2
Total																			104	48	152
Per cent.																			68.4	31.6	100.0

From the above table it will be seen that of 152 observation periods 104 deviated positively from our basic year—1897–1898. The proportion is 68.4 per cent. In other words, more than two thirds of the cumulative rates of solution are higher in periods subsequent to our basic year. Moreover the data we have compared are homogeneous, that is, we have compared rates of solution for cases of similar periods of exposure. It is interesting to notice that of the 108 observation periods in the first half of our data (namely from 1898–1899 to 1906–1907) 67, or about 62 per cent., deviate positively from the basic year. A similar calculation for the latter half of our data shows that of 44 observation periods 37, or about 84 per cent., deviate in a positive direction from our basic year. In other words, the rate of solution materially increases in the latter half of our data over the first half, taking the first year as our basic year for comparative purposes. This corroborates the comparison of our data with our composite average as shown in Table III. We see, then, that in all periods subsequent to our basic year the positive deviations far exceed the negative deviations. To restate the results, the rates of solution are accelerated in later years, or in other words the duration of dependency is decreasing.



SUMMARY.

To conclude, let us restate the threefold purpose of this statistical investigation. The first problem was to determine whether the duration of dependency is increasing or decreasing. The second problem was to determine whether relief agencies were fostering and engendering a state of pauperism. Thirdly, is there a possibility of developing a measuring scale of efficiency.

The answer to the first of these questions is easily given by the statement that the duration of dependency undoubtedly is decreasing. To assign causes for this decrease is difficult.

We may, I think, assume that the nature of the dependency with which we deal at present is at least as deep-seated and as chronic as that experienced fifteen years previous. Indeed, signs are not wanting that our current dependency is of a more chronic nature than hitherto. It seems that there is but one cause that will account for the constantly decreasing duration of dependency, especially since this decrease continues during years of cyclical fluctuations of labor. The cause, in our opinion, is to be found in the efficient rehabilitation that has been carried forward. We have set in action agencies which secure and discover cases of illness in their early incipiency. Thereafter, efficient coördination takes care of every emergency. On the side of illness, a convalescent home ends the rehabilitation. On the side of maladjustment to economic conditions a wholesome policy of establishment in business ventures has been prosecuted.

The second question can also be answered in the statement that relief agencies are not pauperizing their constituents as can be seen from the smoothed curve the shape of which can only be interpreted by the statement that those cases of long duration are more particularly, if not solely, composed of cases of long time dependency such as widowhood.

The third question relating to the possibility of developing a measuring scale or a norm is exceedingly theoretical. The first table presented in this study gave the rates of solution of cases of varying duration classed according to the year of origin. If similar studies were made over wide areas and by different organizations it would be possible to develop a table similar to the American Experience Table of Mortality in life insurance statistics. When such a table shall have been completed we can measure how far either above or below the expected rate of solution for any particular year of exposure a definite organization has reached. The corollary necessarily is that various organizations could be more intelligently compared than at present. It may be objected that the method is faulty, inasmuch as a large accession of widows with small children would tend to lengthen the duration of dependency. The answer to this objection is that the efficiency of an organization is to be found in the number of widowhoods that have been prevented.